

**IN THE CLAIMS:**

Claims 1-32 are cancelled. Claims 33-40 are added. All pending claims and their present status are produced below.

- 1 1. (Canceled)
- 2 2. (Canceled)
- 3 3. (Canceled)
- 4 4. (Canceled)
- 5 5. (Canceled)
- 6 6. (Canceled)
- 7 7. (Canceled)
- 8 8. (Canceled)
- 9 9. (Canceled)
- 10 10. (Canceled)
- 11 11. (Canceled)
- 12 12. (Canceled)
- 13 13. (Canceled)
- 14 14. (Canceled)
- 15 15. (Canceled)
- 16 16. (Canceled)
- 17 17. (Canceled)
- 18 18. (Canceled)
- 19 19. (Canceled)
- 20 20. (Canceled)
- 21 21. (Canceled)

22 22. (Canceled)

23 23. (Canceled)

24 24. (Canceled)

25 25. (Canceled)

26 26. (Canceled)

27 27. (Canceled)

28 28. (Canceled)

29 29. (Canceled)

30 30. (Canceled)

31 31. (Canceled)

32 32. (Canceled)

1 33. (New) A method of predicting the performance of an application in a multi-hop  
2 network, the multi-hop network comprising a client and a server, the method  
3 comprising:

4 determining, for each thread of the application, a set of application factors

5 corresponding to a set of functions performed by the application, the

6 application factors being independent of the network and of a network flow

7 control protocol, the application factors comprising average packet size and

8 average node send time;

9 determining a set of network delay times corresponding to a series of network delay

10 sources along the multi-hop network path, the network delay sources

11 comprising a queuing delay, a bandwidth delay, a bottleneck delay, and one of

12 a transmission delay, a constant delay, and a node delay;

13 determining a set of network flow factors corresponding to the network flow control  
14 protocol, the network flow factors comprising a number of turns added per  
15 direction, the direction relative to the client and the server;  
16 determining a duration of each thread of the application based on the application  
17 factors, the network delay times and the network flow factors; and  
18 determining a total response time based on the durations of the threads.

1 34. (New) The method of claim 33, wherein said determining a set of network flow  
2 factors comprises generating a histogram of node send time, and determining the number of  
3 turns added per direction based on the histogram.

1 35. (New) An apparatus for predicting the performance of an application in a multi-hop  
2 network, the multi-hop network comprising a client and a server, the apparatus  
3 comprising:

4 means for determining, for each thread of the application, a set of application factors  
5 corresponding to a set of functions performed by the application, the  
6 application factors being independent of the network and of a network flow  
7 control protocol, the application factors comprising average packet size and  
8 average node send time;

9 means for determining a set of network delay times corresponding to a series of  
10 network delay sources along the multi-hop network path, the network delay  
11 sources comprising a queuing delay, a bandwidth delay, a bottleneck delay,  
12 and one of a transmission delay, a constant delay, and a node delay;

means for determining a set of network flow factors corresponding to the network flow control protocol, the network flow factors comprising a number of turns added per direction, the direction relative to the client and the server;

means for determining a duration of each thread of the application based on the application factors, the network delay times and the network flow factors; and

means for determining a total response time based on the durations of the threads.

36. (New) The apparatus of claim 35, wherein said means for determining a set of network flow factors comprises means for generating a histogram of node send time, and means for determining the number of turns added per direction based on the histogram.

37. (New) A computer readable medium comprising computer readable instructions which, when executed by a processing system, cause the processing system to perform a method of predicting the performance of an application in a multi-hop network, the multi-hop network comprising a client and a server, the method comprising:

determining, for each thread of the application, a set of application factors corresponding to a set of functions performed by the application, the application factors being independent of the network and of a network flow control protocol, the application factors comprising average packet size and average node send time;

determining a set of network delay times corresponding to a series of network delay sources along the multi-hop network path, the network delay sources

13 comprising a queuing delay, a bandwidth delay, a bottleneck delay, and one of  
14 a transmission delay, a constant delay, and a node delay;  
15 determining a set of network flow factors corresponding to the network flow control  
16 protocol, the network flow factors comprising a number of turns added per  
17 direction, the direction relative to the client and the server;  
18 determining a duration of each thread of the application based on the application  
19 factors, the network delay times and the network flow factors; and  
20 determining a total response time based on the durations of the threads.

1 38. (New) The medium of claim 37, further comprising computer readable instructions  
2 which, when executed by the processing system, cause the processing system to generate a  
3 histogram of node send time and to determine the number of turns added per direction based  
4 on the histogram.

1 39. (New) An apparatus for predicting the performance of an application in a multi-hop  
2 network, the multi-hop network comprising a client and a server, the apparatus  
3 comprising:  
4 application factor logic for determining, for each thread of the application, a set of  
5 application factors corresponding to a set of functions performed by the  
6 application, the application factors being independent of the network and of a  
7 network flow control protocol, the application factors comprising average  
8 packet size and average node send time;  
9 delay time logic for determining a set of network delay times corresponding to a  
10 series of network delay sources along the multi-hop network path, the network

11 delay sources comprising a queuing delay, a bandwidth delay, a bottleneck  
12 delay, and one of a transmission delay, a constant delay, and a node delay;  
13 flow factor logic for determining a set of network flow factors corresponding to the  
14 network flow control protocol, the network flow factors comprising a number  
15 of turns added per direction, the direction relative to the client and the server;  
16 first duration logic for determining a duration of each thread of the application based  
17 on the application factors, the network delay times and the network flow  
18 factors; and  
19 second duration logic for determining a total response time based on the durations of  
20 the threads.

1 40. (New) The apparatus of claim 39, wherein said flow factor logic for determining a  
2 set of network flow factors comprises logic for generating a histogram of node send  
3 time, and logic for determining the number of turns added per direction based on the  
4 histogram.